Before the
Federal communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	DOCKET FILE COPY ORIGINAL
and Their Impact Upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service		

Sixth Further Notice of Proposed Rule Making

Reply Comments of the National Translator Association

As pointed out in the previously submitted comments, the National Translator Association (NTA) is a non-profit volunteer organization dedicated to the preservation of free over-the-air TV in all areas of the United States.

Introduction

Translators must operate on a non-interference basis making use of "left over" spectrum. Thus, translator operators are significantly impacted by any mandate relating to either maximum or minimum power of DTV stations and by any change in the spectrum available for television.

Maximum ERP of DTV Stations

The arguments of AFCCE[1] concerning the impracticality of building 5 megawatt ERP DTV stations appear to this Association to be very valid. An upper ERP limit of 500 kW will allow the transition to progress every bit as well as a higher limit. It is certainly possible that experience may show a higher limit is desirable. If the technological, economic and non-ionizing radiation considerations enumerated by AFCCE can be overcome, the ERP limit could be raised, based upon

[1] Comments of the Association of Federal Communications Consulting Engineers in response to the Sixth Further Notice

what would then be a large amount of practical experience. Starting with a power limit of 500 kW and progressing to a higher power limit later, if experience dictates, will clearly make for a more orderly transition.

In response to possible concerns about not achieving full "replication" it should be noted that, if a station with 500 kW has a need to extend its DTV signal further to match its NTSC Grade B coverage, it could install station owned translators or on-channel boosters in the fringe area. The initial and ongoing costs[2] of even as many as ten or twelve translators would be much less than the corresponding incremental costs of a 5 MW average power station.

In this connection the NTA must disagree with the Broadcasters'[3] that replication should be a first priority. It is easy to understand that broadcasters want to retain the full coverage they have with NTSC. However, it is clear that there are inequities in the present system as it has evolved. This is a good time to move towards a more level playing field. In any event it appears that 5 MW stations are impractical.

Minimum ERP Required of DTV Stations

In the Broadcasters' comments the point is made[4] that some "stations may need to start with small facilities....", and that no minimum ERP should be required. The NTA endorses the concept of no mandated lower limit of ERP. More stations will start early if they can do so with minimum capital cost. In particular NTSC stations serving niche markets and minorities will be the stations most hard pressed to make the expenditure for a DTV transmission facility. Yet a station with an ERP of 1/10 th or less of the suggested 50 kW minimum could serve the

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[2] The initial cost range per site is $30,000 to $100,000 depending upon power and whether a tower has to be constructed. Typical ongoing operating costs per site would be $5000 to $15,000 depending upon station power and related utility power cost and whether the tower is owned or rental paid.

[3] Broadcasters' comments submitted in response to the Sixth Notice, Pg. 5. ¶ "Maximize Service"

[4] Broadcasters' Comments, ibid pg 51 ff, 3rd ¶.

area where its niche audience is concentrated.

Interest of NTA in the Maximum and Minimum Powers of DTV Stations

While NTA believes the general arguments for a lower maximum power and no minimum power for DTV stations are compelling from considerations of an orderly transition, there is a further argument that comes from our own particular area of interest. If on the one hand stations are more limited in maximum power and on the other not compelled to operate with more than they need to serve their targeted audiences then, translators will be less impacted[5], as DTV stations will be less likely to reach into areas currently served by translators. In turn it is less likely a translator will have to modify its operation (new channel, lower power, or what ever) in order to avoid interference to or from a DTV station.

AFCCE Proposes that Variable Gain External Preamplifiers Be Integrated with the DTV Receiver[6]

This issue is somewhat tricky. In rural areas where all DTV signals are low enough to require a preamplifier the variable gain feature is not needed. Rather, the full gain can be used continuously. If there are one or more strong signals at the receiving point along with one or more low signals needing the benefit of the preamplifier, then the strong station may overload the preamplifier when it is set to high gain to improve the weak station. A particular problem comes from Class C FM stations which may have up to 100 kW ERP and which are occasionally found in areas of weak TV signals. Consumer grade preamplifiers have little or no input selectivity and the overloading of them by nearby FM stations is a problem already well known from the reception of NTSC

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[5] As LPTV stations are exactly the same as translators with respect to receiving or causing interference these comments about less impact apply equally to LPTV stations.

[6] AFCCE ibid, pg 3 in Planning Factors

signals under these conditions. The second harmonic of FM signals in the 88 - 108 MHz range neatly fall in TV channels 7 to 13. Thus, a strong local FM signal can impact an all-channel (broadband) preamplifier by generating a second harmonic component in *the preamp.* If the frequency combination is unlucky, this internally generated second harmonic will interfere with the reception of a high band VHF TV signal.[7]

The variable gain feature is probably not useful. However, in many areas with signals of mixed strength preamplifiers will have to be used and they will have to be tailored to the circumstances which exist there. Fortunately accessory manufacturers have many times in the past tailored accessories to the circumstances in a particular area and it is reasonable to expect they will do so in this product area.

It would be advantageous if the system planning could be done without relying on preamplifiers external to the home TV sets in fringe areas, but the arguments for a more modest upper limit on the UHF ERP advanced by the AFCCE and others are compelling, and, in the opinion of this author, preamplifiers will have to be accepted within the planning factors.

Use of Low Band VHF Channels for DTV

du Treil[8] etc. comment on the impact of impulse noise on signals using the low VHF channels (ch 2 to 6) and "disagrees with the FCC's assessment for DTV use of low VHF channels . . ".

Translator operators have long experience with receiving low band VHF signals and using them for translator inputs. This is frequently done at locations well beyond the Grade B contour of the primary station where the desired signal is relatively weak and even modest levels of impulse noise are significant by comparison.

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[7] For example an FM station anywhere in the range of 96.1 to 98.9 Mhz will have a second harmonic in channel 10 (192 - 198 Mhz.).

[8] Comments of du Treil, Lundin and Rackley to Sixth Further Notice, pg 6 ¶ 3.

The sources of impulse noise can generally be identified and corrected. Cracked insulators or other mechanical deficiencies in high tension lines are the most common sources. Power companies are equipped to locate the sources, and, while the degree of cooperation varies from full cooperation to great reluctance, much can be done to minimize this type of interference if the impetus is there to do so. Further, the sources of impulse noise in electrical power distribution systems are incipient failure points. Finding these points and fixing them before a failure develops actually has an up side for the power company.

The forty years of experience using low band VHF signals for translator inputs shows that inadvertent impulse noise generators strong enough to affect the reception in a significant area can be found and the source eliminated. The low band impulse noise problem more often than not can be brought under control and this need not be a reason for avoiding the low VHF channels for DTV stations.

Core Channel Approach

We have previously offered comments in opposition to the core channel approach and particularly to the early recovery of channels 60 to 69. Broadcasters'[9] have outlined the complications and undesirable impacts on many different segments of the public which would result. We can add nothing to what we believe to be their factual and well reasoned discussion. We only say in summary that the transition will be far less disruptive if channel 60 to 69 are retained fully as part of the TV spectrum during the transition.

Problems with Tower Sites

Broadcasters' allude to difficulties with building the DTV facilities according to the assumptions on which the channel assignments were based.[10] Even in rural areas our members are encountering increasing difficulties in erecting or even making major modifications to towers. We urge the Commission to preempt local

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[9] Broadcasters' ibid pg 40 #3.

[10] Broadcasters' comments, ibid pg. 39, line 7

building regulations that arbitrarily restrict the building or modification of towers, or, as a minimum, issue a policy statement encouraging local authorities, the Forest Service and the BLM to be understanding of the need for more towers and communications sites on high ground to facilitate the coming of DTV.

Need for More Time

In the opinion of the NTA the comments in this inquiry have raised important new issues and brought forth ideas not fully debated. Further, several experimental stations are now being built which will provide much information from different parts of the country with different conditions and supplement what was learned in Charlotte.

Recognizing that there is a need to keep the process moving, but also that the public is going to live for the next fifty years or more with decisions made now. Balancing the conflicting needs, the NTA urges the Commission to take additional time to try to reach more of a consensus on such issues as maximum power, minimum power, spacing of nominally colocated adjacent channel stations and the core channel approach.

Compensation to Displaced Translators

Broadcasters' comment in favor of requiring "new entrants to compensate broadcasters for the cost of relocating due to spectrum recovery"[11]. Parties with a wide divergence of interests have urged that spectrum recovery does not make sense during the transition period and we certainly hope the full spectrum is retained until NTSC is no more. However, if stations are forced to move from channels 60 to 69, we certainly feel that translators should be included on an equal basis with respect to compensation from the new users. The compensation should cover the full cost of making any necessary changes, particularly since most translators are operated as a public service. The majority have been built and now operate using the public's tax money. Also, many have been built with

[11] Broadcasters' comments ibid pg 15 ¶ 2.

the help of NTIA grants.

Conclusion

The AFCCE comments, as well as those from others, have made compelling arguments that 5 Megawatt stations will have serious problems in the areas of:

a) Hazardous non-ionizing radiation

b) Power consumption

c) Power generating and handling capacity of the transmission plant

d) Adjacent channel interference to NTSC stations

Further, it is self-evident that an upper limit of 500 kW average power for UHF DTV stations would result in considerably less impact on existing translators (and LPTV stations also) while still providing near nation-wide coverage.

Accordingly, the NTA supports an upper power limit of 500 kW during the transition period while practical experience is gained with DTV stations in the full range of circumstances to be encountered.

The NTA feels that retaining channels 60 to 69 for the full transition period and indeed abandoning the core channel approach altogether would result in a much less disruptive transition to DTV.

Respectfully submitted,
The National Translator Association

by _____

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